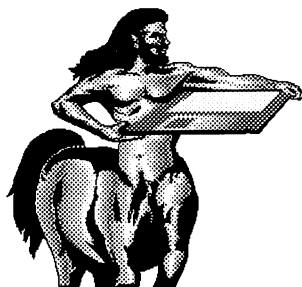


B.A.D.

The Ultimate Disk Optimizer



CENTAUR
SOFTWARE

B.A.D.

USER'S MANUAL

B.A.D.

The Ultimate Disk Optimizer
For the AMIGA Family of Computers

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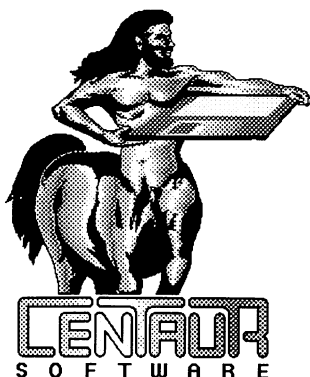
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B.A.D.

Introduction

Congratulations! You have purchased one of the most advanced disk utilities available for the Amiga. B.A.D is designed to greatly improve the performance of your disks, whether they be floppy disks or hard drives. B.A.D is so easy to operate that you could stop reading right now and never return, however we suggest that you keep this manual handy just in case the unexpected happens and you need additional information. Those of you who are naturally inquisitive or technically inclined may enjoy reading the manual in its entirety.

Please take the time now to fill out the Warranty Registration Card and mail it back to M.V.Micro. This entitles you to upgrades at a very reasonable rate, customer service, and technical assistance.

Terminology and Conventions

Throughout this manual certain words will be used to describe specific actions or objects. Listed below are the words that have special meaning.

Point: Position the mouse pointer over a screen object.

Click: Point at object then press the left mouse button once.

Select: Point at object then press the left mouse button twice in rapid succession.

Gadget: Embossed button identified by red text.

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Getting Started

This section details the necessary requirements for running B.A.D., as well as the installation procedure for hard disk users.

The B.A.D. package should include the following:

1. B.A.D. program disk
2. B.A.D. User Manual
3. Registration Card

If one or more of these is missing, contact your dealer, or

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System Requirements

B.A.D. requires an Amiga with at least 512K of memory. Two floppy drives are recommended for floppy processing, but not required.

Optional equipment: Any supported hard drive system, using either the FastFileSystem or the older OFS (OldFileSystem).

NOTE:

B.A.D. does NOT support the FFS on floppy drives for the time being. Using the FFS on floppy drives is not supported by

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Commodore with current operating systems. Upon the release of WB2.0, the FFS will finally be officially supported by Commodore and a subsequent update of B.A.D. will be released that will also support the FFS on floppy drives.

Making Backups

You should never run B.A.D. (or any other program, for that matter) directly from the distribution disk. Instead, copy the distribution disk and work from the copy. The working copy may be either a floppy disk or a directory of a hard disk. If the distribution disk is not already write-protected, then protect it by sliding the black protect-tab open on the disk.

After write protecting your original distribution disk, make a working copy of it if you have not already. If you are not sure how this procedure is accomplished, refer to your Amiga manual for further instructions.

Any copies of B.A.D. are for your use only. It can be quite disturbing to lose time if your program disk fails while working on an important floppy disk or hard drive partition. For this reason B.A.D. was left un-copy-protected. Please don't make copies for your friends or others.

Hard Disk Installation

B.A.D. can be installed on your hard disk if you so desire. There are no associated support files required for B.A.D. to run, thus the only file you need to install on your hard drive is the B.A.D. program and it's icon. Again, consult your Amiga Users Manual if you are not sure how to do this.

Starting B.A.D.

Boot your Amiga to the Workbench in the normal fashion; if you have trouble please consult your Amiga users guide. Now insert your B.A.D disk into any floppy drive. When your B.A.D disk icon appears on the Workbench screen, double click on it, and a small window will open. Now double click on the B.A.D program icon. Once the program has loaded, you will be greeted by the B.A.D screen.

B.A.D. may also be run from the CLI or SHELL. Simply "CD" to the directory where B.A.D. resides, and type "BAD" or "RUN BAD" to load the program. You also may run the program by giving the full path/name description at the SHELL prompt. It is not necessary to "CD" to the directory B.A.D. resides in before running it.

The Screen Layout

In the upper left hand corner of the screen there is a small square gadget; this is the "Close" Gadget. Clicking on this gadget while B.A.D is idle will cause B.A.D to exit. During processing this gadget has no effect.

To the right of the close gadget on the other side of the screen is the "Screen To Back" Gadget. Clicking on this gadget will cause the B.A.D screen to move behind any other screens that are currently being displayed. The screen which is directly behind the B.A.D screen will now be visible. You may return to the B.A.D screen at any time by shuffling through your screens until the

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B.A.D screen is once again visible.

The upper portion of the screen contains a recessed control panel. In this panel are five gadgets which control B.A.D, and various displays to inform you of B.A.D's progress during processing. The five gadgets are identified by red text which describes their current setting. Displayed on the right side of the panel are Elapsed Time, Estimated Time of Completion, and a gas gauge that shows the current percent of completion.

Clicking on the Mode Gadget will bring up the Mode Requester. This enables you to tell B.A.D what process it should perform on your disk. The various modes are described later in this document.

Clicking on either the Source, Destination, or Virtual gadget will bring up the Drive Requester. This allows you to select which drives will be used during the process. The Source drive specifies where the data you wish to process is located. The Destination drive specifies where the processed data will be written for floppy drives only. The Virtual drive specifies which drive should be used for virtual memory caching when processing vary large drives or partitions.

Clicking on the Start gadget will begin the process you have specified.

Below the control panel is a large empty area; this is used for the grid display while processing. At the very bottom of the screen is a long box that is used to display the grid legend.

The Mode Requester

The Mode Requester allows you to tell B.A.D how you want your disks processed. Also available from the mode requester is information on your version of B.A.D. To exit the mode requester click on any one of the mode gadgets.

W.B. MODE (Workbench)

Workbench mode is the default mode selected when you first run B.A.D. When processed in this mode, the entire disk (including all directories, files, and data) will be processed with special preference given to all files ending with the .info extension, i.e. icon files. In this mode all WorkBench operations will be dramatically sped up. Windows will open very fast, icons will seemingly blaze onto the screen, and performance will generally rival speeds found only on hard drives. Disk thrashing when opening windows will be non-existent! This mode is designed for those disks that generally are used with WorkBench.

Note that if during the processing of a disk B.A.D. encounters any directories that do not have any icons, that directory will be processed in the CLI mode, regardless of the selected mode setting.

CLI MODE

CLI mode offers advantages over Workbench mode only if the disk to be processed will never be accessed by Workbench. Once

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again, the entire disk including all directories, files, and data will be processed, with special attention given to keeping CLI access quite fast. CLI users will appreciate this mode, as issuing the "Dir", "List", etc. commands will present very fast output, with no "disk-thrashing" whatsoever. WorkBench operations will perform about the same as a non-processed disk. Once again, you should see CLI performance quite close to that of a hard drive.

TEST MODE

Test Mode is always called before actually starting to move data around on the disk. However it is provided as a separate mode to allow you to test the directory structure of your disk without actually processing it. When a problem is found on a disk, B.A.D will open a window and inform you what the problem is and which blocks are involved. Clicking anywhere in this window will cause the window to close. B.A.D will then abort the current process without causing any harm to your disk. You may use the information provided in the error message to correct the problem with a "Sector Editor" program.

The Drive Requester

(Source, Destination, Virtual)

Clicking on any one of the three drive selector gadgets will open the drive requester. The drive requester functions similarly during selection of the Source, Destination, or Virtual drive. The drive requester displays a gadget for every valid drive B.A.D could find in your system. Your drives are split into two types, Flop, and Hard. (if applicable.)

If you have any RAM-based drives (other than the standard RAM: device) installed on your system, they too will appear in one of the two lists. Any RAM based devices that are configured similar to a floppy drive will appear in the Flop list, while all others will appear in the Hard list.

NOTE: B.A.D. will purposefully mask out the RAM: device, as well as any device starting with the letters "VD", i.e. VD0: or VDK. This is because these are not devices in the true sense of the word, but rather handlers. Processing of these devices serves no useful function.

You may toggle between the Flop or Hard lists by clicking on the Flop/Hard gadget located in the lower right corner of the requester. This gadget will have no effect if you have no hard drives or RAM based drives mounted on your system.

The buttons for the currently selected drives in each list will appear depressed. When you are done making your selection click on the "OK" gadget. After clicking on the "OK" gadget, the drive requester will close and the gadget you initially selected

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(Source, Destination, or Virtual) will reflect the device you have chosen.

Source Gadget

This gadget displays the currently selected source drive. Clicking on this gadget opens the drive requester allowing you to change the source drive as described above.

The source drive is the drive from which B.A.D. will read when processing. This can be any valid drive on your system. If the current drive selected is NOT in the Floppy list, the Dest. gadget will be disabled. This means the source drive will be processed in place, in what is called the "Single Drive" mode. The source drive must contain a non write-protected disk before starting.

Dest. Gadget

This gadget displays the currently selected destination drive. Clicking on this gadget opens the drive requester, allowing you to change the destination drive as described above.

The destination drive is the drive B.A.D. will write to when processing. This gadget is enabled ONLY when the currently selected source drive happens to be a floppy drive. When the Dest. Gadget is enabled, this means B.A.D. will process the source drive in what is called the "Two Drive" mode, and all data read from the source drive will be processed and written to the destination drive.

Virtual Gadget

This gadget displays the currently selected virtual drive. Clicking on this gadget opens the drive requester allowing you to change the virtual drive as described above. The virtual drive has a very special function. Usually you will not have to worry about this particular setting, as it is only used when processing large hard drives or partitions.

The virtual drive will **ONLY** be used when B.A.D. attempts to process a large hard drive or partition. Processing these large drives can consume a fairly large amount of memory, memory which you may not have available on your system. If this situation should arise, B.A.D. will open a window informing you it cannot locate enough RAM to process your drive, and needs to use some empty space on the virtual drive for temporary storage. The drive specified by this gadget will be used for that temporary storage. A more thorough discussion of how virtual memory is used follows the section on hard drive processing.

Start Gadget

This gadget will begin the processing of your selected drive, according to the parameters you have selected.

Floppy Processing

To process floppy disks, first select the desired **MODE** as described above. Most users will want to process floppy disks in the **W.B.** mode if the disk contains many icons. If the disk contains mostly data files and no icons, **CLI** mode will be the better mode to choose.

The next step is to select the drive to use as the **SOURCE** drive. This is the drive where you will place the disk you wish to be processed. Click on the **SOURCE** gadget to change the desired source drive.

Next, select the **DESTINATION** drive. If you have more than one floppy drive, it is best to select a drive that is different than your source drive. This allows **B.A.D.** to read the data from the **SOURCE** drive, process it in memory, and write out the data to a disk in the **DESTINATION** drive. This works much like doing a diskcopy, however the resultant disk is much faster in terms of access times and operation. This is referred to as the "Two-Drive" mode.

For those who have only one drive, you may still process your floppies. Simply select **DF0:** as both your Source and Destination drive. **B.A.D.** will process the disk **IN PLACE**, thus you should make a copy of it in case something goes haywire while processing it. This method of processing takes longer, as there is no destination disk to write to. Expect processing times of around 30-45 minutes for a full disk, with faster times for disks not yet filled. This method is called the "Single-Drive" mode.

Once you have set these parameters, simply insert the disks into the drives, and click on the START gadget. B.A.D. will proceed to process the disk according to your setup parameters. Expect processing times of 2-5 minutes depending on how full the disk is. When completed, you will have a copy of your original disk in the destination drive, identical in every way except for it's speed and smoothness.

After processing, you should open all windows on the processed disk the first time with the write-protect set in the write ENABLE mode so that WorkBench may re-write it's updated .info files. After this is done the disk may then be write protected. Failure to perform this step will not take advantage of the full speed at which your new disk can function.

Hard Drive Processing

All hard drives are processed in the "Single-Drive" mode. This means the drive is processed in place, and no destination device is required (or allowed). To process your hard drives, select the SOURCE drive (or partition) as described above. Since all hard drives are processed in single drive mode, the DESTINATION drive gadget will be disabled. Select the desired mode, as explained above, and you are ready to go. Click on the START gadget and B.A.D. will proceed to process the drive according to the parameters you selected. Note that you will NOT be able to access this partition or drive while it is being processed. Processing times are difficult to predict, but expect a standard 65ms drive to take 30-45 minutes for every 10 megs that you are using on the drive. This is a dramatic improvement over the first releases of B.A.D., which took 1-2 hours to process the same

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amount. When completed, AmigaDOS will automatically load in the disk-validator to re-validate the drive. Please note that this validation may take up to 15 minutes for some drives, so allow the validator to finish before you try to access the drive at all.

The results of processing hard drives are most pleasing. You will find that the drive to operates much faster in all areas and head thrashing will be nearly eliminated. Not only will seeks be reduced, but you will actually reduce wear and tear on your drive as it does not have to jump all over the place to find what it needs. Access speeds will now rival that of a RAM DISK! This is especially true of WorkBench operations. You will find that when opening WorkBench windows, the drive light will only blip a few times. The drive is feeding DOS the information as fast as it can digest it. Once you've processed your drive, you'll never want to be without this added speed and smoothness. It can become quite addictive!

Virtual Memory

All computers come equipped with memory, otherwise called RAM. The amount of RAM installed on an Amiga can vary a great deal, from 512 Kilobytes to well over 8 Megabytes. (1 Kilobyte is equal to 1024 bytes, while 1 Megabyte equals 1024 Kilobytes.) To process any disk or drive, B.A.D. requires a certain amount of memory to store important information about the drive. In particular, hard drives can require rather large amounts of RAM to process. The larger the drive capacity, the more memory B.A.D. will require to complete processing of that drive. Some people may have very large drives, but only 512 Kilobytes of RAM, while others may have relatively small hard drives and a large amount of RAM.

If you process a large drive, but for some reason you do not have enough RAM, B.A.D. will automatically detect this condition and request permission to use "virtual memory."

Before processing ANY disk, B.A.D. will first calculate how much RAM really is available. If necessary, B.A.D. will use most of the free RAM on the system, leaving a default minimum amount for system use. A suggested figure to leave available for the system is shown in the requester that B.A.D. opens. You may modify this figure to suit your own anticipated needs, however sticking with the suggested amount is recommended. Simply type [RETURN] to use the suggested amount.

NOTE:

Some users might find this particular step confusing. Just remember that the suggested figure shown when B.A.D. opens the "Memory Usage" requester reflects how much memory your system will still have available once B.A.D. starts processing your disk.

Next, B.A.D. will determine if the allowed memory usage will be enough to process the disk. If it is not, another requester will open informing you that virtual memory is needed.

NOTE:

B.A.D. will always inform you if virtual memory is needed to process any disk. You will have the option to abort the current process if you do not want to continue using virtual RAM.

Virtual Memory is simply a technique where empty space on the drive you specify for virtual storage is used by B.A.D. This empty space is used much the same way regular RAM is used, though access times for this storage will be much longer. This generally

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results in longer processing times, depending on what percentage of the RAM is actually virtual RAM.

You may use any device for Virtual Memory that was displayed in the Virtual Memory requester, including the same device that you wish to process. B.A.D. takes into account this special condition and will always safely process the disk regardless of the Virtual Memory conditions and requirements.

Note that Virtual Memory usage is supplemental. This means that B.A.D. will always try to use actual RAM before resorting to using Virtual Memory. Generally speaking, Virtual Memory will not be needed unless you are processing a very large drive or you have minimal RAM installed in your Amiga.

Any use of a device for Virtual Memory will be totally transparent to the system. B.A.D. will not change the structure of the selected Virtual Memory device, nor will it modify any used blocks on that device.

During processing, you will not be able to access the drive you are processing, nor will you be able to access the drive you have selected for Virtual Memory storage if it is being used as such. B.A.D. denies access to these drives while processing strictly for safety reasons.

The Grid Display

In the center of the B.A.D screen there is a large empty area when B.A.D is first loaded. This area is used for the "Grid Display" during processing. Immediately after the Start gadget is clicked B.A.D will reconfigure the sunken grid area to best represent the size of the Source drive.

The legend information for the grid will be displayed at the very bottom of the screen. The legend will inform you of the total number of cells within the current grid, how many disk blocks are represented by each cell, and the total number of disk blocks on the source drive. Each grid cell represents a given number of disk blocks. Colors are used to represent the relative percentage of blocks within a cell that still need processing. Typically the grid will start out mostly red and gradually change to all light green. Each cell may be any one of six colors:

Blue: No blocks active, free disk space

Red: 20% of cell processed

Orange: 40% of cell processed

Yellow: 60% of cell processed

Dark Green: 80% of cell processed

Light Green: 100% of cell processed

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Upon the completion of the Test Mode (recall that the "Test Mode" is always performed prior to any actual processing of the disk) the grid will be filled in with either all green or all red depending on which mode B.A.D is using, Single or Two drive modes respectively. This represents where the active data is located on the disk. If processing continues and single drive mode is active, the grid will be updated to represent the processing that needs to be performed after the pre-processing is complete. At this point the grid will be mostly red, B.A.D will then proceed with the task of rearranging all the data on the disk. As processing continues the grid will gradually change to all light green in color. At the completion of processing the grid will be light green and blue. The green areas represent active data on the disk and the blue areas are free disk space.

Two drive mode uses a slightly different approach to display what is happening. Here the problem is displaying what is happening on two different disks using one grid. Our solution was to use a truth table to select which color a cell should be.

Red: No processing completed

Orange: Block read but not written

Dark Green: Block written but not read

Light Green: Block read and written

What this means is that the grid will initially start out as all red. As blocks are read from the source drive their corresponding grid cell will change to either orange or light green. When the buffer is full, B.A.D will begin to write the data out to the destination disk. The corresponding grid cells will change to either dark or light green.

Once B.A.D. has completed processing the grid cell colors represent the following:

Blue: Free disk space on both disks

Orange: Active data on Source, Free space on Destination

Dark Green: Free space on Source, Active data on Destination

Light Green: Active data on both Source and Destination disks

Error Conditions Reported by B.A.D.

As stated earlier, B.A.D. does intensive disk searching and analyzing of all disks prior to actually processing them. This procedure is called the "pre-scan" phase. The "Test Mode" is also available to perform only this pre-scan phase to determine if a disk may be corrupt. This is perhaps the best feature of B.A.D., as it can often point out errors in a drive that previously have gone unnoticed. Given the nature of the AmigaDOS filing system, it is not uncommon for errors to develop over long periods of time; these errors more often than not will "hide" themselves from the system in many ways. The "pre-scan" phase of B.A.D. is especially written to seek out any such errors, and notify you if any are found. Should any be found, a requester will open and notify you of the nature of the error. At this point, B.A.D. will not proceed any further, since processing a drive containing errors is very dangerous.

Since many different types of errors can exist on a hard drive, we felt it best to leave them alone and give you the opportunity to

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make necessary adjustments, rather than try to tackle these errors within the confines of B.A.D. Experience has shown that many errors are minor in nature and can be corrected with a simple fix, while others are far more complex and require a decision be made by you as to what has to be done. Generally this decision entails the deletion of one or more files from the HD due to total corruption.

The output given by B.A.D. when an error is encountered will give you the basic information you need to begin your search for the problem. The offending sector number(s) will be displayed, along with a general description of the problem. Jot this information down, for you will need it later. Click on the "OK" gadget of the requester to proceed and B.A.D. will then stop the current processing of that drive. Next, quit B.A.D. by clicking on the "Close" gadget in the upper left corner of the screen.

The next step is to study the documentation for the "DiskEd" program provided in the PD drawer of the B.A.D. distribution disk. It is not necessary to understand fully the workings of the AmigaDos filing system or the disk structure, but it is important to understand how to access the offending partition and the individual sector numbers that B.A.D. informed you were in error.

Generally speaking, sectors that B.A.D. points out as having errors involve relationships between file headers and/or directory blocks. You may have a problem with a sector actually "belonging" to 2 different parent sectors, which is a problem on any disk. Of the sector numbers that B.A.D. presents as problematic, one or more of them will be file header or directory blocks. These are the blocks you must look at using the sector editor. With the sector editor you can then find out the NAME of that header block, and determine which file is involved in the

problem. If there are other header blocks involved, these must be looked at too. What you are trying to do is find the name of any "parent" of a problematic sector.

Once you have determined which file(s) or directories are involved, you then should first try to copy these to a floppy disk for future examination. They may or may not copy correctly, but at least you have a chance of saving these files or directories. Then, from the CLI delete at least ONE of the offending files or directories, and run B.A.D. again using the TEST mode. If you are lucky, you removed the problem and everything will check out. If not, there may be additional problem sectors found by B.A.D. Approach these in exactly the same manner. Use the sector editor to examine the offending blocks and their parents, copy the offending files or directories to a different disk, and delete at least one of the offending files and/or directories. Then try running B.A.D. again on that same partition in the TEST mode.

This is not meant to be a full tutorial on fixing problems with disks, but it is a basic approach to fixing a minor problem given the information B.A.D. provides you. Do not be afraid of disk errors; they all can be overcome with a bit of patience and understanding. The tools provided in the PD drawer are a great aid in repairing minor problems. Read the documentation, study the examples given, and you should be able to take care of most of these minor problems with little trouble.

Cautions

Since B.A.D. is a device-based program that deals with complex hard drives and filing systems, certain precautions should be taken before running B.A.D. First, make sure you are not running any other device based utilities designed to "speed-up" or enable "intelligent caching operation" of disks. This includes programs such as BlitzDisk, Faccll, and FastDisk. These programs use bizarre caching routines that can interfere with the method B.A.D. uses to process disks, and can actually cause fatal termination of B.A.D. This is NOT desirable by any means, for the result will usually be a very corrupted disk. Stay away from any of these type programs while processing disks with B.A.D.

Secondly, and most importantly, be sure to backup any disk you intend to process with B.A.D., especially hard drives. This cannot be stressed enough, and you are cautioned to heed this warning. Why, you ask? Any number of things are possible. Hard drives can fail at any time, power can fail at the wrong time, other programs running on the multitasking Amiga can suddenly cause a GURU, etc. All such improbable occurrences will generally result in serious problems on any drive which B.A.D. is processing at the time.

B.A.D. and RAD

Using RAD to your Advantage

Since B.A.D. does recognize certain RAM based devices, you can use this to your advantage to process floppy disks quicker. Many users will want to process a number of their floppy disks at one time, yet they do not have enough disks to serve as destination disks. One method we use is to configure the Amiga "RAD:" device exactly as if it were a floppy disk. NOTE: You must have at least 900K of memory available in order to mount this particular ram based device.

Here is an example mountlist entry you can use.

```
RAD:    Device = ramdrive.device
Unit   = 0
Flags  = 0
Surfaces = 2
BlocksPerTrack = 11
Reserved = 2
Interleave = 0
LowCyl = 0 ; HighCyl = 79
Buffers = 5
BufMemType = 1
#
```

After mounting this particular RAD: device, run B.A.D. You will notice RAD: now shows up in the FLOP list, thus B.A.D. thinks it is

B.A.D.

a floppy drive. Select DF0: as your SOURCE drive, and RAD: as your DESTINATION drive. Put the disk you wish to process into drive DF0: and click on the START gadget. After B.A.D. has finished, simply diskcopy RAD: back onto DF0: and you now will have an optimized floppy! This particular procedure goes VERY quickly, and will save you lots of time when processing multiple floppy disks.

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